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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,535	07/24/2003	Kiyohito Murata	07057.0049-00	8211
22852	7590	09/20/2005	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			DIAMOND, ALAN D	
			ART UNIT	PAPER NUMBER
			1753	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/625,535	MURATA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Alan Diamond	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Comments***

1. The objections to the claims set forth in paragraph 1 of the Office action mailed 05/06/2005 have been overcome by Applicant's amendment thereof.
2. The Examiner acknowledges that claims 1 and 6 are now of different scope.

### ***Claim Objections***

3. Claims 1 and 4-8 are objected to because of the following informalities:

In claim 1, at line 4, the term "An" should be changed to "an". The same applies to dependent claims 4 and 5.

In claim 6, at line 8, the quotation mark before the word "an" should be removed. The same applies to dependent claims 7 and 8.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 4, and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship

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between the cooling chamber to the rest of the thermophotovoltaic generator apparatus.

It is not clear how the cooling chamber at line 13 is related to the rest of the apparatus.

It is suggested that the term "in the cooling chamber" be inserted after the word "cooled" at line 19 of claim 1. The same applies to dependent claims 4 and 5.

***Claim Rejections - 35 USC § 102/103***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 6 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kushch et al (U.S. Patent 5,711,661).

Kushch et al teaches a thermophotovoltaic generator comprising a burner that is supplied with gas/air mixture through inlet fitting (56) for introducing the combustible mixture into a plenum (57); an emitter (61) heated by the combustion heat produced by the burner; a photoelectric conversion cell (68) that converts radiant energy from the emitter into electric power; and a cell holder portion, which, as seen in Figure 5, is the left-side, vertical, outer surface wall of the water cooled heat sink (69) (see also col. 2, lines 10-24; and col. 9, lines 1-50). In Figure 5, a skilled artisan would most certainly

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assume that the water cooled heat sink has its own walls in view of the fact that it is transporting water, and the photoelectric conversion cell is on said left-side, vertical, outer surface wall. As seen in Figure 5, the water cooled heat sink (69) reads on the instant outer shell member and surrounds the entire left side of the photoelectric conversion cells, and causes cooling water to receive heat from the photoelectric conversion cell by contacting the cooling water and said left-side, vertical, outer surface wall with each other (see also col. 9, lines 1-50). Note in Figure 5 that the surface where said left-side, vertical, outer surface wall and cooling liquid contact each other is a vertical, or close to vertical, (i.e., it is a non-horizontal) surface. Since Kushch et al teaches the limitations of the instant claim, the reference is deemed to be anticipatory.

In addition, the instant cell holder portion would obviously have been present once Kushch et al's thermophotovoltaic generator has been provided. Note In re Best, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

***Claim Rejections - 35 USC § 103***

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kushch et al (U.S. Patent 5,711,661) in view of Kitchin (U.S. Patent 1,704,390).

Kushch et al teaches a thermophotovoltaic generator comprising a burner that is supplied with gas/air mixture through inlet fitting (56) for introducing the combustible mixture into a plenum (57); an emitter (61) heated by the combustion heat produced by the burner; a photoelectric conversion cell (68) that converts radiant energy from the emitter into electric power; and a cell holder portion, which, as seen in Figure 5, is the

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left-side, vertical, outer surface wall of the water cooled heat sink (69) (see also col. 2, lines 10-24; and col. 9, lines 1-50). In Figure 5, a skilled artisan would most certainly assume that the water cooled heat sink has its own walls in view of the fact that it is transporting water, and the photoelectric conversion cell is on said left-side, vertical, outer surface wall. As seen in Figure 5, the water cooled heat sink (69) reads on the instant outer shell member and surrounds the entire left side of the photoelectric conversion cells, and causes cooling water to receive heat from the photoelectric conversion cell by contacting the cooling water and said left-side, vertical, outer surface wall with each other (see also col. 9, lines 1-50). Note in Figure 5 that the surface where said left-side, vertical, outer surface wall and cooling liquid contact each other is a vertical, or close to vertical, (i.e., it is a non-horizontal) surface. Kushch et al teaches that the water can be boiled, i.e., that its device can be a low cost boiler, and thus, steam can be supplied (see col. 11, lines 6-14). Kushch et al teaches the limitations of the limitations of the instant claims other than the difference which is discussed below.

With respect to instant claims 7 and 8, Kushch et al does not specifically teach a cooling chamber receiving and cooling the steam that is produced from the water provided through the heat sink (69), or that said cooling chamber has a plurality of cooling fins. Kitchen teaches the prevention of incrustation by feeding steam into a cooling chamber (11) that can be cooled using cooling fins, wherein the steam is condensed and water is formed and emulsified (see page 1, lines 1-52; and the figure). It would have been obvious to one of ordinary skill in the art at the time the invention

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was made to have supplied the steam from Kushch et al's boiler to Kitchin's cooling chamber (11) so that Kitchin's device could be operated and encrustation prevented.

***Response to Arguments***

10. Applicant's arguments filed July 15, 2005 have been fully considered but they are not persuasive.

With respect to claim 6, Applicant argues that Kushch et al neither discloses or suggests, in combination with other features of this claim, that a cooling liquid comprises at least two kinds of liquids, a first liquid having a greater specific gravity and a lower boiling point than a second liquid, the first liquid existing at a lower level, a first portion of the vapor absorbs heat from the second liquid, while a second portion of the vapor cools and converts back to liquid which returns to the lower level. However, this argument is not deemed to be persuasive because Applicant is arguing limitations that are not in claim 6.

***Allowable Subject Matter***

11. Claims 1, 4, and 5 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112, 2nd paragraph, and the objection for informalities set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 571-272-1338. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



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you have questions on access to the Private PAIR system, contact the Electronic  
Business Center (EBC) at 866-217-9197 (toll-free).

Alan Diamond  
Primary Examiner  
Art Unit 1753

Alan Diamond  
September 16, 2005

A handwritten signature in black ink, appearing to read 'Alan Diamond', with a stylized flourish at the end.